

Monday, Nov 2, 2003 10:27 AM

To: Mr. Ted Yoo

From: Vic Peetso

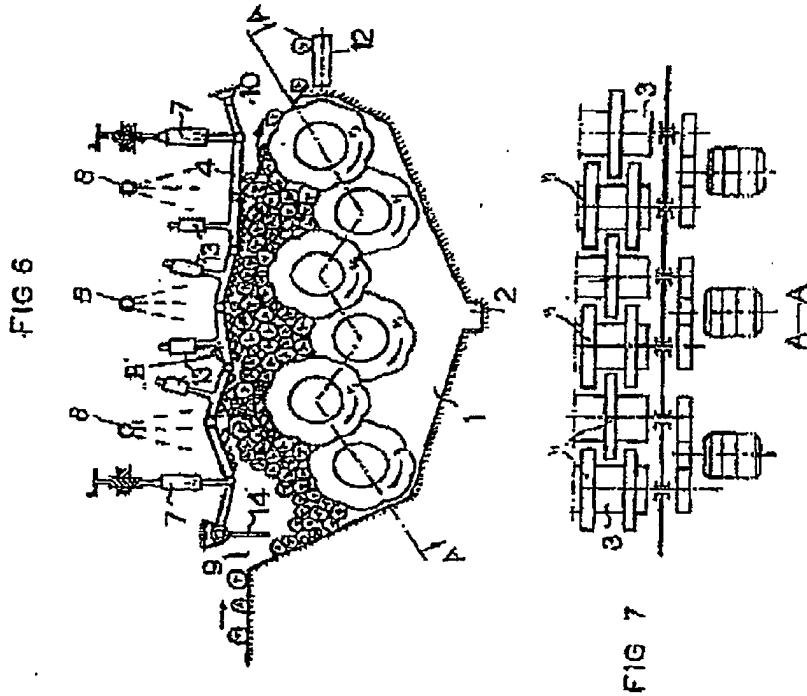
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Trill Patentet N:o 158 984



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SWEDEN

PATENT # 158 984
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SWEDISH PATENT AND
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GRANTED MARCH 21, 1957
PATENT TIME FROM MAY 20, 1954
PUBLISHED MAY 28, 1957

Drawing attached

VALMET AB, HELSINKI, FINLAND

Machine for debarking of logs

Inventor: E Ilkavalko, U Koptinen and U Rehnström

Priority requested from May 28, 1958 (Finland)

The invention in question is a debarking machine for logs, where un-barked logs are fed, in a continuous stream, into the machine's debarking bin in a transverse direction. The bin is equipped with an intermediate level with a rotating disc-group and the logs, dry or water treated, are moved forward by the named level, whereby the logs are tumbling against each other.

In present machines of above described type, the surface pressure needed to loosen the bark is only brought about by the weight of the logs. Because of this, the height of the amount of logs which are being treated at the same time is considerable. This is needed in order to get the required pressure to loosen the bark.

Due to the above these kinds of machines are large and need a big space in the shop, which, in addition, has increased the cost of production.

With the present invention both the dimensions of the debarker and the cost of production can be reduced considerably and, at the same time, the efficiency of the debarking effect is increased. According to the invention the characteristics of this debarking machine are mainly that, on top of the logs are one or more stiff springs,

weights, or similar elements mounted on a flexible press, which is equipped with a tearing-surface which forces the forward moving, and somewhat rotating, logs together between the flexible press and the intermediate level.

Other characteristics of the invention are described in the attached drawings.

Figure 1 shows a vertical section of the debarker taken from the direction the logs are fed through the machine and, figure 2 shows a cut along the line A - A in figure 1. Figure 3 shows, in a larger scale than the previous, a part of a flexible press in cross section along the line B - B. Figures 4 and 5, and figures 6 and 7 respectively, illustrate, in a corresponding way, to figure 1 - 2, two varying appearances of the machine according to the invention, which will be described below. The intermediate level in the bin is equipped with rotating disks, working in the same direction, (V1, V2 and V3); the disks being mounted beside each other on shafts (3) so that the disks on one shaft work between the disks on another shaft, and the loosened bark can fall through the intermediate level. The shafts (3) are mounted so that the same motor drives two shafts; the shafts' centerlines are now located on one cylinder surface in the bin.

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In order to facilitate the logs' forward movement and, at the same time, make the tumbling of the logs more effective, it is an advantage if the disks' perimeter is toothed.

As shown in the drawings, the circumference of the disks, which are behind each other, form suitable arches where the distance between every other disk-group is less than the diameter of the disk. In two adjacent series of disks, the disks are so arranged that disks in one group always work in the arch between the disks in the other group. The dimension of the disks' arch surface, and the arrangement of the disk-groups, are made to rotate in relation to each other so that the distance between the arch surfaces between the two adjacent groups doesn't allow a large enough gap for the logs to be squeezed in between.

A flexible loaded press (4) with a tear surface (5) is mounted on top of the bin (1). The press brings about enough surface pressure to loosen the bark of small quantities of logs where the logs own weight is not enough to get the desired result.

The press (4) has been made flexible through universal bars (6) mounted on the front which are brought into action through e.g. hydraulic or other presses (7).

When the un-barked logs, in one way or the other, are fed in a continuous stream in a transverse direction through the front opening (9) of the bin they fill the room between the groups of disks, located on the intermediate level, and the flexible press (4). While the groups of disks rotate towards the extraction opening (10) the logs are exposed to pressure between the intermediate level and the flexible press (4), and the bark is loosened when the logs are tumbling against each other. The press' scraper and the

disks' circumference also take the bark off from logs that come into contact with them.

Also, one can reduce the rotation speed of the disk-group from e.g. the couple V1 to V3. This will give a greater pressure when the logs tumble against each other on their way towards the extraction opening. By doing so the dimensions of the machine can be reduced and thereby save space.

The de-barked logs are removed through the opening (10) to the transportation conveyor (21). The bark, together with water, is removed through spaces in the intermediate level to the drainage (2), and conveyed to the treatment space through jets (8).

Figures 4 and 5 show a debarker which in its construction form differs somewhat from the above described machine.

In this model the intermediate level raises where the first two couple of disk-groups are concerned; in the beginning slightly against the machine's head end and later it inclines at a right angle so that between the disk series V2 and V3 a pocket-like space is formed and the bottom of the bin complies with the intermediate level.

The flexible press (4) in this model is also equipped with a tearing-surface but has several chain-like parts working in the direction the logs are traveling. The parts are equipped with weights (13) where the pressure capacity can be altered. The presses (7) are placed at both ends of the flexible press (4). On the front end (9) of the flexible press a pusher part (14) is installed in order to regulate the feeding of the logs.

In the same way as the first machine, un-barked logs are pressed between the flexible press and the intermediate level where the

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flexible press' (4) chain-like parts can be regulated by changing the weights' (13) gravity. When the disk-groups rotate in the direction shown by the arrows in figure 4 the logs move forward in a continuous stream and on their way to the extraction opening (10) the logs are caught in a more powerful tumbling movement because the disk-series' rotational speed lessens in the direction of the extraction opening. In the pocket-like space some of the logs turn around and rotate in the direction shown by the arrows, while other logs move to the extraction opening. Because of the pocket-like space the tumbling process is prolonged and the machines de-barking capacity is increased without changing its dimensions.

In the design of the invention, according to figures 6 and 7, the same parts and reference symbols as in figures 1 - 5 are used. The flexible press (4) corresponds in principle to the flexible press in the previous design. In the bin with its in-the-middle sloping bottom the intermediate level has a different design.

Each disk-group pair has been placed with the disks' radius higher than the preceding disk-group. This way one side is high and the other side is low and each disk-group shaft gets its own horizontal space. This way several pocket-like spaces are formed where logs fall in and rotate in a reverse direction while other logs continue to the extraction opening as shown by the arrows in figure 6. Through such an arrangement the treatment space can be smaller without changing the effectiveness of the de-barking.

The invention is not restricted to the above designs but can, within the frame of the invention, be modified in several respects, especially with regards to the intermediate level and the flexible press designs, as well as the space between the two. The flexible

parts of the press can also be designed differently than described above.

Also, the number of disk-groups and the way they are placed in relation to each other and their relative revolutions can be changed.

It is obvious that a debarker designed according to the invention can also be used for dry-barking of logs, in which case the bin will be designed to remove dry bark where e.g. compressed air can be used to remove the bark.

Patent rights claim

1. A machine for de-barking of logs in which un-barked logs are fed in a continuous stream in a transverse direction into the machine's de-barking bin, and which is equipped with one of the rotating disk-groups forming an intermediate level where the logs, either dry or under water treatment, are moved continuously forward by the aforementioned intermediate level. The logs which are parallel to each other tumble together because of a flexible press (4) equipped with several stiff springs (7), weights (13), or other flexible elements placed on top of the logs. The flexible press (4) is equipped with a tearing-surface (5) which presses together the forward moving and somewhat rotating logs between the flexible press and the intermediate level (3).

2. A de-barking machine, according to the patent right claim 1, is characterized by a flexible press equipped with two or more flexible joining parts mounted in the feeding direction.

3. A de-barking machine, according to the patent right claim 1 and 2, is characterized by the fact that the intermediate level in the direction relative to the extraction opening is

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designed to delay the logs when tumbling against each other on their way to the extraction opening by applying a greater pressure.

4. A de-barking machine, according to the patent right claim 1 - 3, is characterized by the fact that the intermediate level (3) is designed so that one or more pocket-like spaces are formed along all of the intermediate level's width so that when the logs have reached these pockets the logs are brought to a reverse rotation while the rest of the logs are moved forward.

Stated publications

Patent letters from

Sweden 31 129; Finland 25 552.

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FIG 3

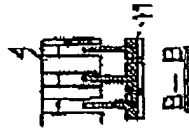


FIG 1

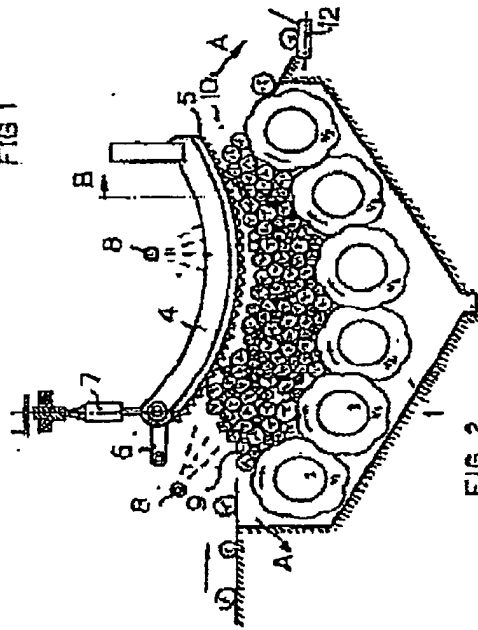
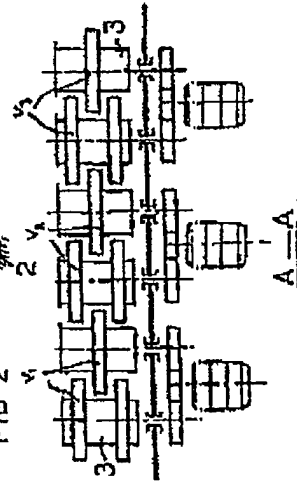


FIG 2



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